

Bio-algorithms for decision making

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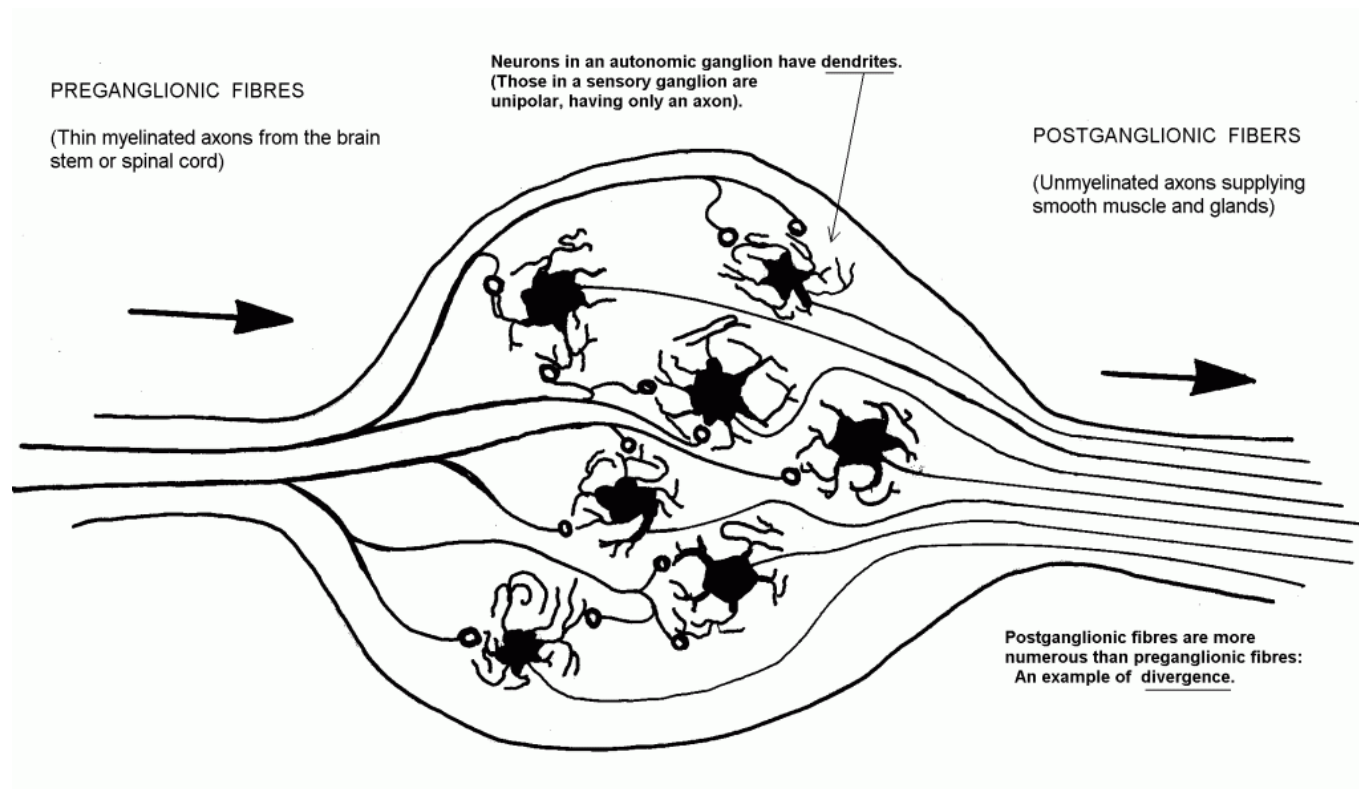
Manolache Manuel Adelin

Why?

- A tool for resolving conflict from various areas of activity
- Time sensitive issues
- A model for future systems
- In depth analysis of existing methods

Nervous system

- Great advantage over competitors - conduction velocity can exceed 110 m/s
- Ganglion relay station for incoming signals



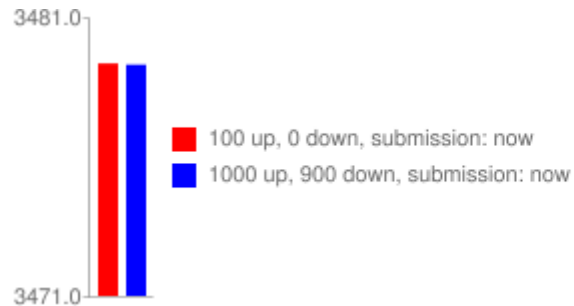
Collaborative voting

- Swarms, Groups
- Louis B. Rosenberg

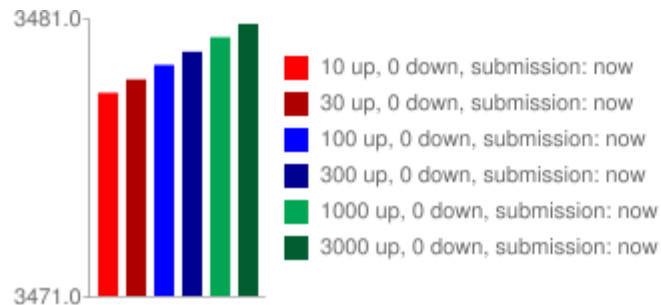
“Neurons behave in a very similar way when making decisions. The final decision is produced through a real-time closed-loop competition among subpopulations of distributed excitable units, with each subpopulation vying for a different alternative. An alternative is chosen when a subpopulation exceeds a certain threshold in the level of support in respect to the others “

Reddit ranking

- For Reddit we can see that controversial stories rank lower



- Drawback - the first vote bias



Proposed method

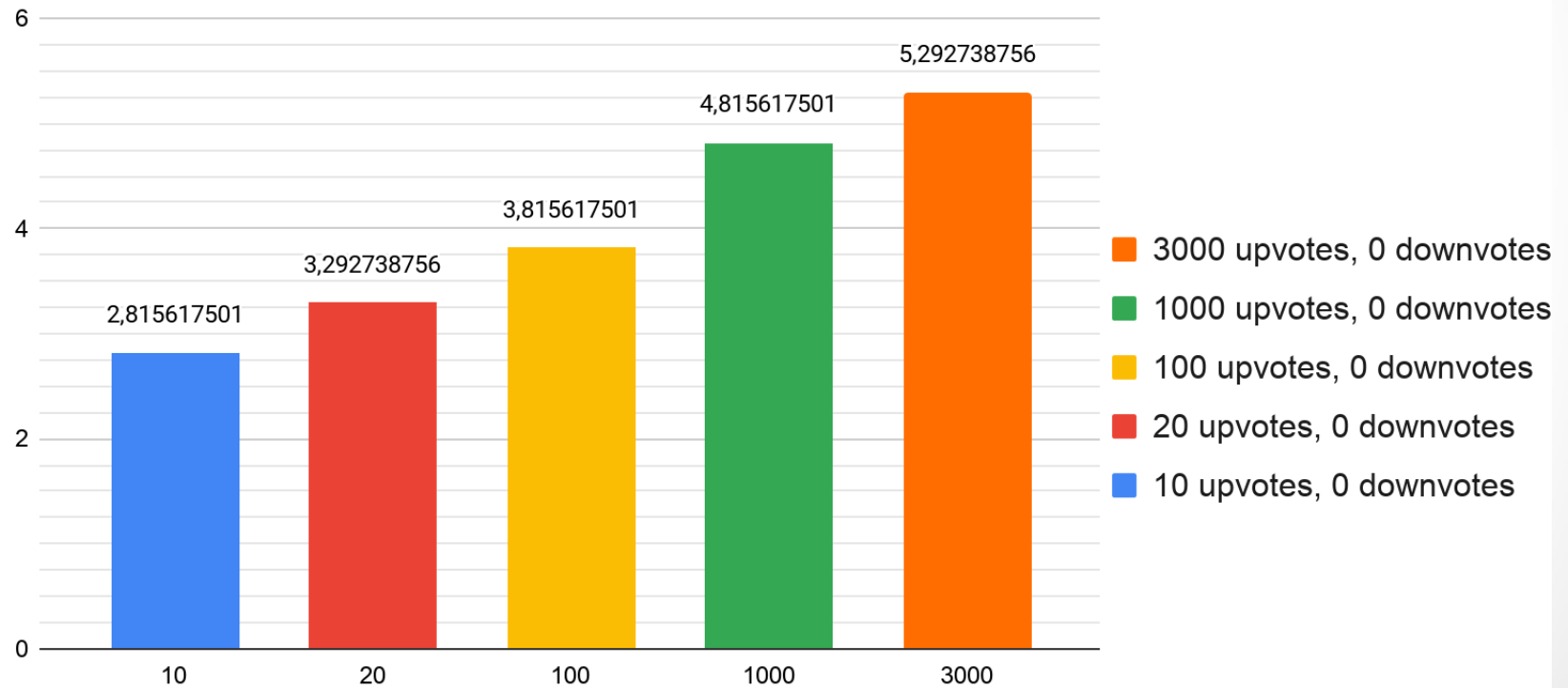
- Steps
 1. Determine the predefined
 2. Calculate the vote frequency relative to the start through votes dispersity
 3. Calculate the decision upvote/downvote ratio
 4. Determine the predefined vote weight for members

Influencing factors

- Factors that the ranking algorithm takes in to account :
 1. weight of the voter
 2. number of votes on a decision in a unit of predefined time
 3. number of upvotes/ downvotes
 4. newer decisions stack to the top

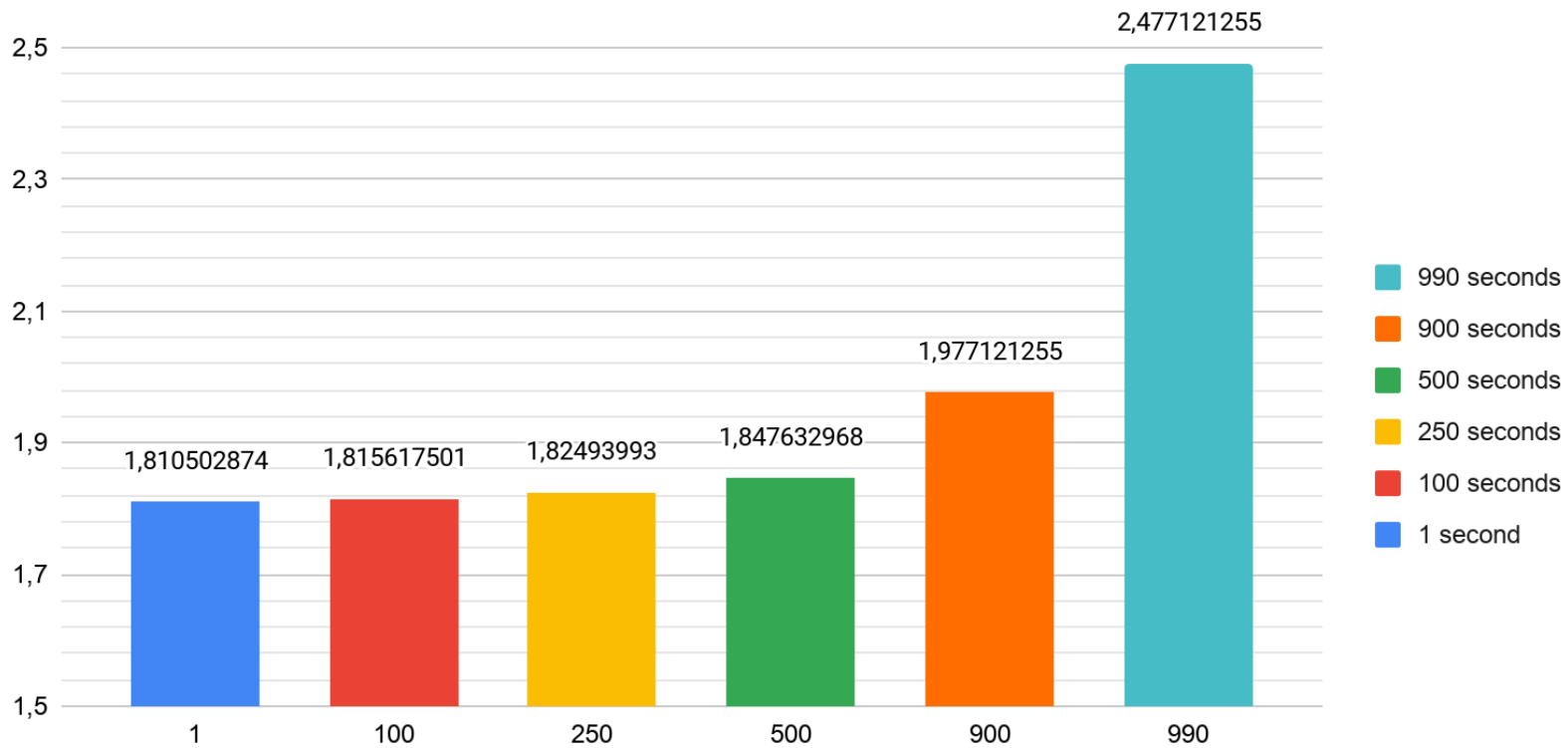
Results

- The vote number raises the ranking logarithmically



Results

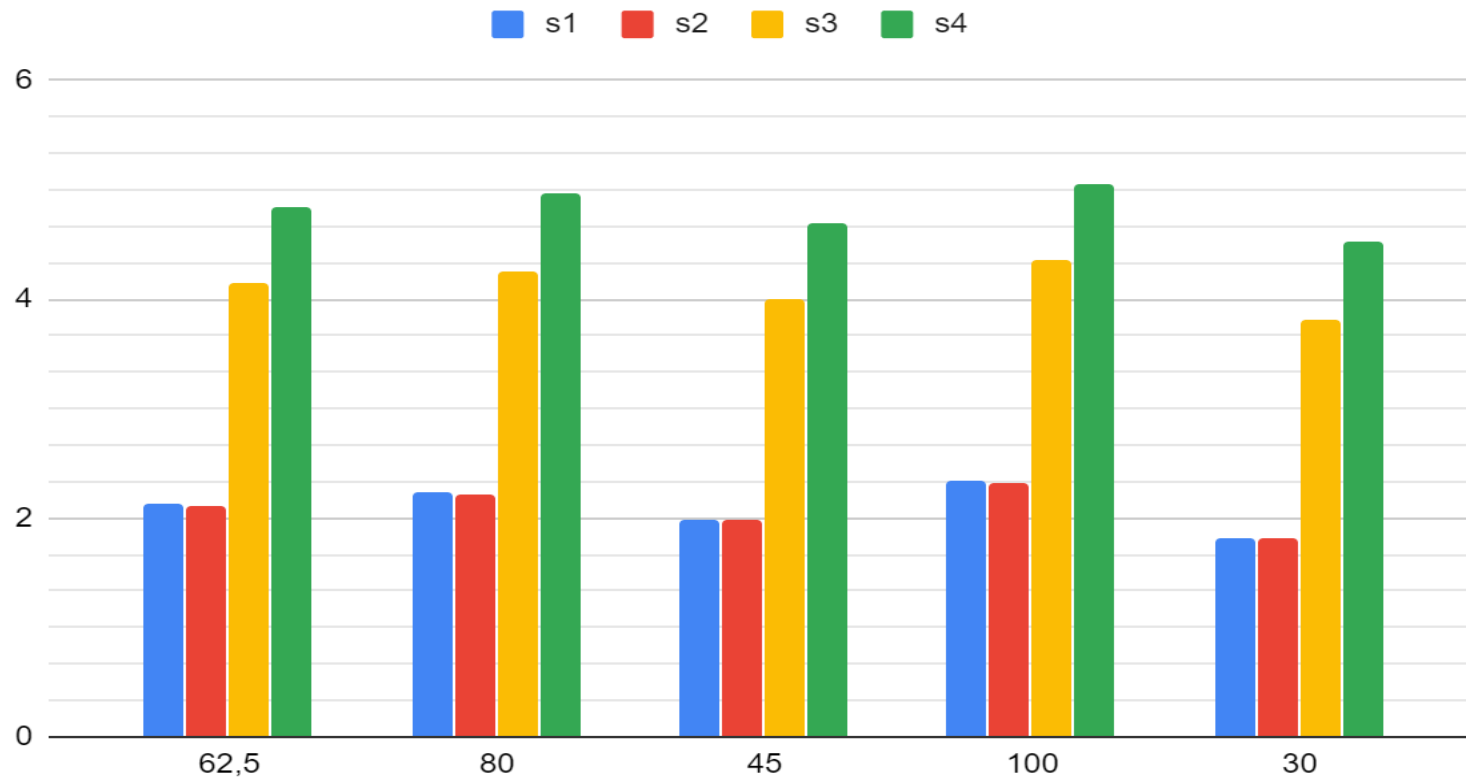
- The submission time influences the ranking



Results

- The impact of vote dispersity

	D	U	c	m
s1	100	100	0	1
s2	0	100	-1	1
s3	100	0	1	100
s4	1000	500	1	500



Conclusion

- a functioning platform for groups or communities that need to reach a consensus
- raise in visibility when it comes to existing decisions alternatives
- an algorithm that can be applied throughout various fields of study to create a hierarchy of existing possibilities.